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TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLE:—Country Roads and Roadsides. 271
Notes on Mexican Travel.—X. (With figure.) . . . . . *C. G. Pringle.* 272
FOREIGN CORRESPONDENCE:—Noteworthy Orchids. . . . . *W. Watson.* 273
PLANT NOTES. 274
CULTURAL DEPARTMENT:—Garden Work for Early July. . . . . *T. D. Hatfield.* 276
Notes on Lilies. . . . . *F. H. Horsford.* 276
Carnation Notes . . . . . *W. N. Craig.* 277
Some Good Hardy Perennials . . . . . *R. Cameron.* 277
CORRESPONDENCE:—The Future of the Long-leaf Pine Belt. . . . . *L. J. Vance.* 278
Conifers in Iowa. . . . . *Professor L. H. Pammel.* 279
RECENT PUBLICATIONS 279
NOTES. 280
ILLUSTRATION:—Lamourouxia Pringlei, Fig. 39. 275

Country Roads and Roadsides.

PEOPLE who live in the country, and more especially people who pass their summers in the country, spend a very considerable portion of the time when they are not indoors in driving or walking over country roads. That the roadbed should offer good wheeling and footing, both for economy and comfort, every one admits, and when we remember how many people pass over a given stretch of road within a season, it needs no argument to show that if its borders are a delight to the eye, this fact will add greatly to the general enjoyment. Against the disfigurement of roadsides by linemen and path-masters, who turn them into raw or rocky wastes, or disfigure them with the axe and with fire, we have, therefore, often protested, and no apology is needed for recurring to the subject again.

Where roads are laid through smooth and highly cultivated farm-land, a broad border of turf extending on either side of the wheel track and flowing under open fences to unite with the grass of meadows or upland fields, with an occasional tree to break the monotony, is always agreeable to the eye when kept trim and neat. But where the features of the country are rugged and stony, undoubtedly the greatest beauty is secured if native shrubs and trees are allowed to take possession of the borders and the axe is withheld until they become too dense or aggressive. We have in mind a stretch of such road less than a mile in length to which we have alluded more than once, and we speak of it again simply to enumerate a few of its attractions at this particular season of the year. In the first place, it is not a highway of travel, and, therefore, it is only wide enough to allow two vehicles to pass. This is a distinct advantage. A broad road always has a depressing effect, and the wayfarer feels lonesome on it as he does on any other desert. The more nearly a rural road is obliterated by its surroundings the more delightful it is, and this is especially true of a by-road which offers a sense of seclusion as one of its principal charms. And, again, a narrow road can be more easily and cheaply kept in repair, since every additional square yard of surface requires so much more work, and this is an important matter in a community where the road-tax is a heavy item of expense. This particular road, after emerging from a piece of timber, climbs a hill and then winds about some others until it drops into the rich bottom-lands of a small river and joins an important highway. On either side of it trees and shrubs in great variety take care of themselves, and in the first week of July, when the foliage had been washed clean by the rains, this border in its general effect was singularly beautiful. In some places there were thickets higher than a carriage-top, through which the eye could hardly penetrate, while just beyond were openings to give glimpses of a picturesque, rolling country, with a mountain range for a sky-line. The masses of foliage projected and retreated in the most natural way, without a single hard line or discordant color, now shrinking into deep shadows and again boldly courting the full sunlight, so that to one looking forward the disappearance of the road to right or left always seemed an invitation to prospects still more fair.

The details of this border were quite as interesting as its general attractiveness. Here were Elders in the beauty of their bloom, and white Blackberry-blossoms close beside the red and black shining fruit of the Raspberries. Close along the roadbed the clustered flowers of Redroot were mingled with wild Roses, and here and there among these native wildings was an occasional Sweetbrier which had strayed from some old homestead. The buds of the smooth Sumach, in their tall panicles, were just yellowing into bloom, while the pink fruit of the Staghorn Sumach was already appearing. The Black Alders were showing inconspicuous flowers among the dark green foliage, and at one point where the ground was moist a mass of White Azaleas fairly glittered against the smooth clean leaves of the Spice-bush. Thorns and Cornels, Choke-cherries and Hazels and Huckleberries were in fruit, and the Hardhack was just opening its closely-set rosy flowers. Along with the shrubs were young trees of various species struggling to assert themselves. There were little Tulip-trees with foliage much larger than in mature specimens; Oaks and Maples of various species, with tints of foliage only seen in young individuals; Ash and Elm, and here and there a Hornbeam, one of which, thrusting out its horizontal branches above some low-growing Viburnums, was especially picturesque; Hickories, Butternuts, Chestnuts, Basswood and Sassafras; and over all these clambered the Wild Grape and Moon-seed, Smilax, Bittersweet and Clematis, with Virginia Creeper festooning the fence-rows or hanging from the limbs of the trees which had here and there been allowed to reach mature size.

Of course, at this season, the flowers were not so abundant either on the shrubs or beneath them as they were a month or so ago, but in the borders of the wood where the piece of road begins Prince's Pine and spotted Wintergreen were blooming, and the Wood Lily, Lilium Philadelphicum, was holding up its orange red flowers. Virginia Anemones were not rare, and there was an occasional stalk of the graceful four-leaved Milkweed, while the great white feathery panicles of the tall Meadow Rue and the light pink bells of the Dogbane, which deserves a better name, were much more numerous. In one open place for a rod or more there was a brave show of Columbines of different colors which seemed as contented as wild ones among the grass, although they came from a pinch of seed scattered there a score of years ago. In another place, a depression by the side of the road showed where a house had once stood, although no man now living remembers it; and here, more evident than the excavation which was once a cellar, and is now nearly filled up by time, glowed a strong mass of the tawny orange flowers of the common Day Lily, Hemerocallis fulva, from roots which were probably set there in the last century.

The plants enumerated were only those which naturally arrest the eye at this season. Later on there will be other flowers and bright fruits, and then will follow the rich colors of the autumn foliage. But there is not a day in the year when one who walks or drives over this short bit of road cannot find delight for his eye and food for his

imagination. And why should not the roadsides of a civilized country be treated with as much regard to their beauty as public parks are? In one sense they are quite as truly a part of the general property of the people. This view of the case prevails in one of the hill towns in Connecticut, where an association of gentlemen has been organized especially to protect the roadsides. This is a matter worth the attention of every village improvement society, and where no such bodies exist much can be accomplished by personal argument and remonstrance, and if the subject is agitated on every occasion and discussed in the local papers a sentiment will be engendered which sooner or later will make itself felt. The people who destroy this beauty do not do it maliciously. They simply do not realize how much loveliness they are laying waste, and if their attention was called to it, and remonstrances made in every case where natural scenery is defaced, the evil would decrease. This has been demonstrated more than once.

One argument more potent with many men than all other considerations is this: Natural beauty has a distinct money value. As society becomes more enlightened this beauty will be valued more highly. It is a business truth, that the man who diminishes the beauty of his estate by carelessly chopping down trees or defacing its road borders at the same time lowers the market value of his own land and that of his neighbor's. It is also a truth demonstrated in practice, that the people of any town who make an intelligent effort to preserve and develop its natural resources in the way of scenery also make a distinct addition to the market value of every acre within its limits.

Notes of Mexican Travel.—X.

OAXACA.

IT was the remote state of Oaxaca, situated on the Pacific coast, and occupying the extreme southern portion of the Mexican Republic, which mainly engaged my attention on my tenth botanical journey to that country. Landing with my assistant from a steamship of the Ward line at Tampico on April 26th, 1894, I took a train of the Mexican Central Railway early the following morning for the capital city. The long winter drought was still unbroken, and the seventy miles of lowland plain first crossed were dusty and hot. In the sparse forest covering it most plants were dormant, only a few shrubs showing blooms. A welcome relief to this oppressive monotony, and all the more interesting and delightful by contrast with it, was our ascent of the successive benches of the verge of the table-land; the abrupt hills covered by strange growths, the beetling masses of lime-rock towering on the sides of the cañons threaded by us, the intervales occupied by open meadows, the feeding-grounds of deer, or tropical forests embellished by epiphytal plants in variety, the blue river winding through these, with its wonderful chain of cascades a mile in extent, white torrents pouring into deep blue pools, green-rimmed with moss-covered tufa; the Palm groves on either hand, the Coffee plantations in the dim mountain forests, the Cane-fields showing light green far down the valley, the bold climbing by our train of the mountain-side through untamable wilds, its alternate clinging to dizzy brinks and rolling through tunnels cut in the solid rock; and, finally, the unmatched view down the far receding vista of the great cañon through which we had come up into the cooler air and broader light of the table-land. Many a time before had I passed through these scenes, but never had their charm been greater, and never had the exhilaration at gaining the highlands been fuller.

It is by the Mexican Railway that we choose to travel into the south-east from the city of Mexico. Over meadows covered with brownish Salt-grass we pass between lakes Texcoco and San Cristobal, which at this season show wide margins of bare earth whitened by alkali. We quit the Valley of Mexico for the Plains of Apam, which wear a bluish green hue from their frequent plantations of Agave Americana, the source of pulque, the national beverage. All the way to Puebla we see much of the best soil, the extensive glades and hillsides of this open country devoted to this culture. At this season the landscape shows scarcely any other verdure. Not until July will rains refresh the parched earth and cover it with springing grass and abundant flowers.

Thus 116 miles to Puebla, a large and boastful city, situated in the midst of the almost unbroken plain lying between the snow-peaks of Popocatepetl and Orizaba. Here we pass the night to take train at six A. M. on the Mexican Southern Railway, leading from this point to Oaxaca, a distance, as the road runs, of 230 miles. When we have gained Tehuacan, seventy-five miles out from Puebla, we find ourselves on the border of the Plains of Puebla. To the east of Tehuacan rises a chain of mountains which connect Mount Orizaba with the mountains of Oaxaca, here visible in the south-east. As these mountains present a barrier to the rains which come up from the Gulf, the region of Tehuacan is comparatively arid, and from the scanty soil of its hills and mesas of lime-rock we see growing the vegetation peculiar to such conditions—Cactuses, Yuccas and stunted shrubs.

Such is the character of the country till we come to San Antonio, the first station within the state of Oaxaca. Here we enter a bewildering labyrinth of river cañons, narrow and heated gorges, often with picturesque walls of red conglomerate. On every hand arise high above us brown, arid steeps which bristle with tall Cactuses overtopping scantily leaved shrubs. Only along the water-course stand in a narrow line more verdant and umbrageous growths. For three or four hours our train is gliding along such cañons. Here and there they open out to give room for strips of arable intervale with ranches or villages; in many places they are so narrow that their wall has been cut down or tunneled through to make place for the roadbed. We descend with the water to an elevation of only 1,800 feet above sea-level; then, leaving the main stream, we follow up one of its branches toward the continental divide. At an altitude of 3,000 feet the Cactuses disappear, and the hillsides are covered thinly with numerous species of subtropical shrubs and trees. Between 4,000 and 5,000 feet the forest-growth becomes heavier, and its composition is somewhat changed. A Palm and an arborescent Nolina, presumably N. inermis, Watson, here occur on dry limestone bluffs. The station of Las Sedas occupies the summit at an elevation of 6,000 feet. This is a gap in the water-shed, whose undulations of limestone formation are covered with a meagre forest of Juniperus flaccida, Schl., and various Oaks. To the west of this point, occupying the north-western corner of the state, lies the Mixteca Alta, a rugged region of 6,000 to 9,000 feet elevation. East by south trends the Andean system, here called the Sierra de Juarez of late (formerly the Sierra de Oaxaca), its highest peaks rising to 10,000 to 11,000 feet. Southward stretches the lovely Valley of Oaxaca, a hundred miles in length.

A run from Las Sedas of thirty miles and a descent of 1,000 feet brings us at nightfall to the city of Oaxaca, with its 40,000 inhabitants, situated beside the spreading sands of a river, and surrounded at all times of the year by fields of Maize and Sugar-cane. It was early May, when we settled in Oaxaca to work the surrounding country, and found in Rev. Lucius C. Smith an excellent friend and co-worker in botanical pursuits, and in his mission-house admirable quarters. But little rain had fallen; and, except in irrigated fields, the earth still showed brown. Luxuriantly green, however, were the heavily forested mountains surrounding the valley. North-east from the city, its crest only a dozen miles away, rises to over 10,000 feet a spur of the Sierra de Juarez, called the Sierra (or Cerro) de San Felipe, after the village at its foot. On the west side of the valley the Sierra de Clavellinas, twenty-five miles distant, has an altitude of 9,000 feet. Nearer, in the south-east, is the flank of another group of mountains, while within a

mile or two of the city, on the north and west, the valley is broken by hills, whose summits, notably that of Monte Alban, give evidence by terraced fields of ample breadth, by vast mounds, ramparts, etc., of immense toil by a prehistoric race. The state of Oaxaca is a mountainous one, with countless fertile valleys lying among its mountains, and all its cooler summits are well wooded. Various tribes of Indians possess the land and live in a thousand villages.

Traveling in this state we were on the track of Galeotti and Liebmann and other collectors of fifty or sixty years ago, since whose day the state seems hardly to have been visited by botanists, owing to the fact that, before the railroad came to its capital in 1893, it was only to be reached by long rides in the saddle over hard mountain trails. From May till January we traveled out from our base in all directions; and, wherever we went, we met with as many desirable plants as we could handle, the usual proportion of undescribed species among them, till we had secured a collection far greater than any previous one. The rainfall increased in amount throughout June and July, waned in September, and ceased altogether by the middle of October. The period of greatest heat preceded the rainy season, yet I cannot tell of oppressive heat at that elevation, though the region lies only seventeen degrees north of the equator. Seldom does the mercury rise above eighty-five degrees, Fahrenheit. Killing frosts formed in open places of the higher mountain tops about the end of October, though, under forest protection, several species of Cnicus, Senecio, Eupatorium, etc., bloomed throughout the winter. In the valley it was only in the lowest spots that crops were at any time in peril from cold.

Many times we went by train to the hills around Las Sedas for the plants which only grow in dry, calcareous soil, or to stations below in Tomellin Cañon, where were to be found the denizens of the hot lowlands. Among these, Acacia Pringlei, Rose, an upright tree of considerable size, was a new find. Twice, with Indians and donkeys conveying our supplies of food and paper for the trip, we tramped to the western mountains, where were springy alpine meadows, rich in novelties. On another occasion, alighting from the train at Las Sedas, alone and with our loads on our own backs, camping in the wilds where night overtook us, and gathering plants as we went, we marched some fifty miles, and during three days over the windy heights of the divide and down through long cañons to the river in the burning deserts, to regain the train at Tomellin. The bales of plants brought home on that trip included not a few new species.

A score of times we climbed to the summit of San Felipe, on which visits we scoured its crests for several miles, usually passing a night or two there under the scanty shelter of some tree, or, at best, of some coal burner's shed, formed of pine rifts and bark, or of a jutting rock, and were often the sport of mountain tempests. On the sides of this mountain, at an elevation of 1,000 feet above the valley of Oaxaca, or 6,000 over sea-level, begins a belt of dwarfish Oaks, Quercus glabrescens, Benth. From 7,000 to 8,000 feet, Q. grisea, Liebem., is the prevailing species, and above 8,000, quite to the summit ledges, Q. nitens, Mart. and Gal., mingles with Q. reticulata, H. B. K.; but the latter is the larger and more abundant tree, and in deep, moist soil about the summits forms the heaviest of forests. On certain of the drier and warmer buttresses of the mountain side, about 8,500 feet altitude, stand groves of the undetermined Pine first reported from near Monterey; while above this, and especially on the rocky ridges of the top, abounds Pinus Montezumæ, Lamb., and often attains magnificent size. By springs and brooks, from 2,500 feet to the top, Alnus acuminata, H. B. K., and Salix Bonplandii, H. B. K., are commonly found in large specimens. And in such situations, Sambucus Mexicana, Prest., and Buddleia Humboldtiana, R. and S., grow to a diameter of two feet or more.

All through the summer the moist and fertile mountain heights, whether in sunny meadow or in woodland shade, were bright with flowers—blooms as varied and strikingly beautiful as any garden or hothouse can show. There were scarlet Rigidellas and Tigridias, there were Dahlias, Fuchsias and Begonias in several species, scarlet, purple and blue Salvias in large variety, several flaming Lamourouxias, blue Lupines, and blue and crimson Pentstemons as tall as our heads; there was a yellow-rayed Heliopsis of largest size among many other herbs, shrubs and trees, with flowers representing every color, whose names would be unfamiliar to the gardener. Of these, perhaps, the two most worthy of cultivation are Abelia floribunda, Decaisne, and Spigelia speciosa, H. B. K. The former is a shrub four to six feet high, growing in masses and densely hung during many weeks with rosy flowers two inches long; the latter is a perennial herb topped with a pendent truss of long tubular flowers, which are crimson tipped with yellow. More striking than these, however, and of much horticultural interest, if its successful cultivation is possible, is a new find, Lamourouxia Pringlei, Rob. and Greenin (see figure on page 275 of this issue). It is a much-branched but erect shrub, three to five feet high, found growing on the rocky and wooded summit ridges of San Felipe, and seen covered during many weeks of autumn with gorgeous crimson bloom.

But how shall I describe the charm of the Oak forests during the serene and sunny days of late autumn, when the masses of Orchids, clinging to the bodies and branches of the trees, were in flower—Lælias, Cattleyas, Epidendrums, Odontoglots—the finest species which Mexico yields?

Charlotte, Vt. *C. G. Pringle.*

Foreign Correspondence.

Noteworthy Orchids.

GRAMMATOPHYLLUM RUMPHIANUM.—This is the correct name for the plant described last year by Herr Kranzlin as a new species under the name of Grammatophyllum Guilelmi II. (see GARDEN AND FOREST, 1894, page 104), from plants introduced by Messrs. F. Sander & Co. Two plants of it are now in flower at Kew, one of which, I know, came from Borneo. The larger specimen has pseudo-bulbs eight inches long by three wide, leaves fifteen inches long and three inches wide, and an erect scape five feet long bearing exactly fifty flowers and buds. The flowers have subequal sepals and petals, each one and a half inches long and three-quarters of an inch wide, colored bright green-yellow, with large irregular blotches of dark brown; lip three-lobed, the two side lobes folded over the column, the lateral keeled, hairy inside, dull white, with brown lines, and a yellow crest. In both plants the three lowest flowers on the spike have only four segments and a perfect column, but no labellum.

CIRRHOPETALUM ROBUSTUM.—I noted this remarkable plant last year (see GARDEN AND FOREST, page 113) when it was added to the Kew collection. It was named by Mr. Rolfe in 1893 from a plant flowered by Colonel Trevor Clarke. Messrs. J. Veitch & Sons exhibited a plant of it in flower a few days ago at the meeting of the Royal Horticultural Society, when it was awarded a first-class certificate. It is by far the largest of all Cirrhopetalums, both in leaves and flowers, the former being a foot long and four inches wide, the latter four inches from tip to tip of sepals, which are half an inch wide, yellow, tinged at the base with purple, the petals yellow and the lip dark purple. A figure prepared from Messrs. Veitch's plant is given in the last issue of *The Gardeners' Chronicle.* The leaves as there represented are about half the size of those of the Kew plant.

CYPRIPEDIUM BELLATULUM ALBUM.—A plant of this rare variety was shown in flower at the last meeting of the Royal Horticultural Society, and was awarded a first-class certificate. It is an exceedingly beautiful form, the flowers being quite as large as the type and of the purest white, save a small yellow tip to the column. The leaves are also remarkable in being quite green, whereas in the type they are marbled and colored dark purple beneath. According

to a note in the *Orchid Review*, this plant was discovered by a Mr. R. Moore, of the Shan States, Burma, who claims to have been the discoverer of the beautiful Cypripedium Charlesworthii. There are several plants of the albino C. bellatulum in English collections, all from the same source as that shown by Sir F. Wigan, of Sheen. Mr. Moore says that C. Charlesworthii grows on limestone hills, the roots clinging to the rocks with extraordinary tenacity.

Phajus Cooksoniæ.—The medal offered by the Royal Horticultural Society for the best new hybrid Orchid was this year awarded to Mr. Norman Cookson for a Phajus under the above name, the result of a cross between P. Humblotii and P. grandifolius. It is a distinct and handsome Orchid, not, however, up to the standard of Mr. Cookson's grand hybrid of 1890, P. Cooksoni, raised from P. tuberculosus and P. Wallichii, and which is, perhaps, the finest hybrid Orchid yet raised. The new one has greenish yellow sepals and petals and a large open lip, colored rich red, with golden veins at the sides, the front rose-colored, with dark red spots, the margin being elegantly frilled. The plant shown bore a spike of five expanded flowers. The name is not well chosen, as it too closely resembles P. Cooksoni for practical purposes. Last year the medal was awarded to P. Owenianus, a hybrid between P. Humblotii and P. Oweniæ, a variety of P. bicolor, and raised by Mr. Cookson.

Habenaria rhodocheila.—This is a near ally of Habenaria pusilla (militaris), from which it differs mainly in having green leaves and pale green sepals and petals, the lip only being attractive in its size, an inch in length, deeply lobed, and in its bright scarlet color. There are several pans of it now in flower at Kew, where I first saw this species ten years ago, when a few plants of it were received from Hong Kong and flowered in a warm greenhouse. A figure of it has lately been prepared for the *Botanical Magazine*. It is worth a place along with such Orchids as H. pusilla, with which it is grown at Kew, and which will soon be in flower, and H. carnea, the Malayan species, which is as ornamental in foliage as an Anœctochilus, being deep olive-green, with numerous silvery spots. These three and the tall white-flowered H. Susannæ are well represented at Kew this year.

Renanthera Imschootiana.—A plant of this was shown in flower a fortnight ago by Mr. E. H. Woodall, of Scarborough. It was introduced about 1890 by Messrs. F. Sander & Co. among an importation of Ærides Godefroyæ, and first flowered with Mr. Van Imschoot, of Ghent, in 1891, when it was described by Mr. Rolfe in the *Kew Bulletin*, p. 200. It is closely allied to Renanthera coccinea, the flowers being nearly as large and as brilliant in color, while in its habit of flowering when small (Mr. Woodall's flowering plant is only six inches high) it is superior to that species. The sepals are broad and colored blood-red, the petals being narrow and colored yellow, with red spots, while the lip is pale yellow, with a pair of red spots near the base. The spike is axillary, unbranched, and bears a dozen or more flowers.

Cattleya superba alba.—One of the most beautiful and distinct of tropical Cattleyas is the typical C. superba, from the northern states of South America, which has been known in cultivation here about fifty years. Hitherto it has shown little variation in the color or form of its flowers, with the exception of the white-flowered form. This was discovered in the neighborhood of Para by Mr. E. S. Rand, in 1890, when it was introduced into England and named by Mr. Rolfe. It was shown in flower a fortnight ago by Mr. T. Statter, of Manchester, and, of course, easily obtained a first-class certificate. The flowers are pure white, except for a stain of golden yellow toward the front of the lip. The only drawback C. superba has is in its behaving rather badly under cultivation for a Cattleya. It is, however, easy to get, being abundant in a wild state and a good traveler.

Hybrid Disas.—Our houses are gay with the bright pink flowers of Disa Kewensis, D. Langleyensis, D. Premier and D. Veitchii, as well as of D. racemosa and D. tripetaloides, two of the three species from which the hybrids were obtained, the third being D. grandiflora. I have before observed that while the last named is a comparative failure at Kew, the hybrids are as easily grown as Geraniums, while they reproduce themselves from offsets as freely as Strawberries. All they require is a cool house or frame, pot or pan culture in a mixture of peat, sphagnum and sand, and plenty of water at all times. There are spikes on some of the plants bearing eighteen or twenty perfect flowers, and pans ten inches across contain a dozen plants, each bearing a spike of bloom. These Disas may be ranked with plants for the ordinary greenhouse.

Cycnoches Egertonianum.—A plant of this species has lately produced both male and female flowers at Kew. Last year a pseudo-bulb on the only plant we then had developed a growth about half-way up, and this was removed with the upper half of the old pseudo-bulb attached. This offset plant flowered two months ago, producing the long, pendent, many-flowered raceme of purple and green male flowers peculiar to this species. And now the parent plant is in bloom, bearing a short raceme of three thick, fleshy female flowers, the segments lanceolate, one and a half inch long and half an inch wide, the lip fleshy, smooth, with the appearance of a large flat, broad bean. Had both plants been in flower at the same time the occurrence would have been interesting, as, so far as I know, no plant in cultivation has produced male and female spikes together. The question arises, did the removal of the offset from the old plant influence the sex of the former? No flowers could be more dissimilar than the male and female flowers of this Cycnoches.

London. *W. Watson.*

Plant Notes.

Dwarf Red Pavia.—It does not appear to be generally known that there are several very dwarf varieties of the Red-flowering Buckeye, Æsculus Pavia, indigenous to the coast region of the southern states, and that some of these varieties are hardy here in the north. As raised from the seed they are somewhat variable in the size of foliage and growth of the plants, but in the main they retain their dwarf habit and bloom when two or three years old from the seed, and when not more than twelve to eighteen inches high. The flowers are produced in a long terminal spike; calyx tubular, and the petals bright red and showy. The plants bloom here the first of June. Mr. Andrew S. Fuller has been growing these Buckeyes on his grounds at Ridgewood, New Jersey, for a long time, and the plants of one variety have reached a height of four feet in about ten years, while others of the same age are scarcely three feet high.

Elæagnus argentea.—A well-grown specimen of this shrub, when it reaches a height of from eight to ten feet and as great a breadth, is certainly one of the very best of the woody plants with light-colored foliage. Some of the Asiatic species, like Elæagnus longipes, which we have described and figured and which is useful for its fruit, and the smaller E. umbellata, have been in recent years quite generally grown, but the native plant has been comparatively neglected. The flowers are white without and yellow within, and are not strikingly beautiful, but they are delightfully fragrant, and its abundant fruit is considered edible by persons who have not a fastidious taste, but the silvery foliage of its wavy leaves and the fragrance of its abundant flowers make it an attractive garden plant to those who do not care for its mealy fruit.

Lonicera flava.—This plant, which has been preserved in a few gardens since its original discovery nearly a hundred years ago, like Gordonia Altamaha, was a lost plant until a few years ago, when it was rediscovered by Mrs. J. G. Smyth on Paris Mountain, North Carolina, very near the point where John Frazer gathered its seed in 1810. This Honeysuckle, as well as Lonicera Sullivantii, were figured in the third volume of Garden and Forest, and we have already explained how L. Sullivantii is the plant which

has been generally cultivated under the name of L. flava. L. Sullivantii is common in our parks and in old gardens, and its thick foliage, with glaucous bloom and bright red fruit, which remains fresh on the vines later in the winter than that of any other climbing Honeysuckle, has made it well known. The leaves, however, are often disfigured late in the season by mildew. L. flava is much more rare, but it deserves to be better known. The bright orange-yellow flowers are borne in June, and they are slightly fragrant. The fruit is bright scarlet and ornamental; the leaves thin and only slightly glaucous. Both of these Honeysuckles are good hardy climbing plants. Six years ago we called attention to the distinction between these plants and the superior beauty of the true and rare Lonicera flava. At that time we suggested that some enterprising nurseryman would do a good stroke of business

Fig. 39.—Lamourouxia Pringlei.—See page 272.

and render a public service by taking up this plant and making it abundant, and almost every year since then we have spoken of it; nevertheless, it remains a rare plant in American gardens.

Nymphæa liliacea and N. Robinsoni.—From Mr. J. Brydon, of Yarmouthport, Massachusetts, we have received two other flowers of the rare Nymphæas originated by Monsieur Marliac, and now first flowered in this country. These are of the same series as N. Laydekeri, N. flammea and N. ignea, previously described, and are the progeny of a cross between the N. rubra of the tropics and some hardy Nymphæas whose identity has not been disclosed. N. liliacea is about the size of N. Laydekeri, but with much wider and less-pointed petals. The sepals are dark green, with brownish shadings and margined with pale rose. The petals, eighteen in number in the specimen received, are suffused with magenta-red on a white ground on the outer row, and the inner petals are nearly self-colored of a darker shade. The stamens are closely clustered, deep orange, with yellow tips. The flower is particularly brilliant under artificial light. N. Robinsoni has long pointed sepals and petals. The former are pale olive-green, lined with primrose and rose. The petals are as numerous as in N. liliacea, and have a touch of yellow in their red, it being, we understand, one of the crosses with a yellow species. These are welcome additions to our hardy Nymphæas, and will be especially valuable if they possess the free-flowering habit of N. Laydekeri and can be propagated.

Kniphofia pauciflora.—This Natal species is very distinct and quite unlike the usual "Poker-plants" in habit and flower. The leaves are narrower and slightly channeled. The small flowers are tubular, with spreading notched lobes, which are creamy white, the tubes being bright yellow. The flowers are borne sparsely on one side of a short erect stem.

Senecio Japonicus.—Among hardy herbaceous plants of a bold character there are few more effective than this Groundsel. It has stems about five feet tall and palmate leaves deeply lobed. At this time its flowers, which are composite, are open. They are yellow, some three inches in diameter, with bold rays. It is for its foliage, however, that this plant is specially adapted, and in a rich moist soil it becomes highly ornamental. Though introduced to cultivation long since, it does not seem to be much known.

Cultural Department.

Garden Work for Early July.

SEED should be now sown for the earliest lot of Cinerarias. We usually sow it in a cool house, but cold frames answer the same purpose. The soil for the seed-pans should be light. A compost of half-sifted leaf-mold and loam, with a handful of sand, is most suitable. The seed is small, so that scarcely any covering will be required. If it is sown on a rather uneven surface, and the pan or box is given a shake afterward, it will be sufficiently covered. As frequent waterings, even with a fine sprayer, disturb the seed, we partly submerge the pans, wetting the soil on the subirrigation plan. For all fine seeds this is by far the better way. The seed should germinate in less than two weeks, and in the course of a month the seedlings should be ready for small pots. We shift by easy stages, using slightly heavier soil each time, making the final shift some time in October into seven or eight inch pots.

Our last lot of Gloxinias are now in bloom. Following our usual plan, we shall sow a box of seed this week, and the plants will make small bulbs before the winter. Started again next spring they will give us a lot of medium-sized plants, which we grow in six-inch pots to about a dozen blooms. For all purposes, except for exhibition, these are the most convenient size. We hold them another season, making our largest specimens in eight-inch pots, and many of them measure two feet across, with nearly a hundred open flowers at one time. We have selected our blooms for seed with care, so that now we have a strain of our own with flowers of moderate size and striking colors, on plants which are floriferous and of good habit.

Our Chinese Primulas have been shifted into four-inch pots, and by easy stages they will be put into six or seven inch pots as their vigor demands. Slightly heavier soil may be used, although I have seen very fine Primulas grown in a soil composed almost wholly of leaf-mold. Cold frames with an easterly exposure are best suited for these plants, with slight shade and abundance of air day and night. When flowers appear on any plants, as will happen in September, they should be taken out as soon as the first flower opens, and all which show inferior color should be discarded. The sowing of herbaceous Calceolarias had better be deferred until the end of July.

Shrubby Begonias for winter blooming can be grown along in successive shifts. Generally seven-inch pots are large enough to conveniently handle when required for decorations. Nearly all Begonias naturally make good specimens; B. incarnata, however, is often disposed to bloom prematurely, and in this case we take out the tips and pick off the blooms, to encourage a better development of the plant for blooming later.

Small plants of Cytisus racemosus are better grown in pots. If planted out, it has been our experience that they grow too large and are difficult to lift. Small plants, neat in shape, about eighteen inches high and a foot through, are a very serviceable size, and in order to have plenty of these at hand we raise a new set every year. Young growths now breaking away from old plants which have been "cut in" and taken with a heel are more likely to root than cuttings of the ordinary kind.

Euphorbia fulgens, with long graceful stems clothed with bright orange-scarlet flowers, is a cheerful object in the greenhouse in winter when it is cut in long sprays and largely used for decorations. The plants are now making good growth, and later on will be benefited by weak applications of liquid-manure. A plan followed with this, as also with the showy E. pulcherrima, commonly called Pointsettia, is to plunge the plants for the summer in a spent hot-bed, and a luxuriant growth is usually made. Where bottom-heat is at command, some growers take off the tips of the Pointsettia, and rooting these late in the season they form low stocky plants, which in England are very largely used for church decorations. Deutzias in pots may have a little liquid-manure once a week. One lot struck this spring from soft wood were recently planted outdoors. They are not expected to flower this winter, but with another season's growth they will be neat plants, ready for six-inch pots. Those who wish to adopt this practice should now take soft cuttings from plants outdoors; they will root easily and will make good plants another season. Indian Azaleas which flowered early should now have made their growth. Those in pots would be benefited by a little fertilizer.

Cuttings of Zonal and fancy Pelargoniums for winter and spring flowering are better if rooted now. Bouvardias, Stevias and Paris Daisies should be regularly and closely pinched in, and Carnations also until the end of July, and even later, if not required to flower early. Pansy seed should be sown this month, and Myosotis for next spring's bedding. Canterbury Bells, Foxgloves and Sweet Williams, which are required for border work, should be transplanted into nursery beds. Foxgloves and Canterbury Bells we find of great service for piazza decoration, and always pot a number every autumn for this purpose, storing them in a cold frame. Brompton and Autumnal Stocks, as they bloom, may be marked and have the flower-stems cut away. These will make good plants later, and we shall be certain of knowing which are double and of good color. Plants of Hydrangea Otaksa, which have been used for spring decoration, can be cut into four eyes on the strongest shoots. These should break and make good shoots before the autumn. The value of this plan of restricting the growth will be found next spring, when fewer but larger heads of flowers on self-supporting stems will be the result. The common Snapdragons, as winter-blooming plants, have given so much satisfaction lately that all who have a few of the dwarfer kinds should take plants up this autumn. For winter blooming it is not yet too late to sow seed. Frequent applications of Bordeaux mixture may be applied to Violets as a preventive of disease. At least, mine escaped the sickness, and I attribute this to timely spraying.

Lately I made a nursery bed of young hardy plants raised from seed this spring, and shall go over the rock-garden and take out a large number of seedlings to hold as a reserve. In a large garden, where borders have to be continually replenished, the value of a reserve garden cannot be overestimated.

Wellesley, Mass. *T. D. Hatfield.*

Notes on Lilies.

THE flowering season for most hardy perennials has been a haphazard one this year. The late frosts seem to have changed things. No idea of the usual succession of flowers can be had from this year's experience. Many of the Lilies

which were the most advanced were cut off in the bud. They did not all die down, but no flowers will be produced on such as were sufficiently forward when the freezing weather came. Lilium speciosum and L. Hansoni have suffered, also L. Dalmaticum; L. Henryi was partly cut back, though a few plants will bloom.

Among the various Lilies that have already flowered here not one has given more satisfaction than the Nankeen Lily, Lilium testaceum, or, as it is often called, L. excelsum. The origin of this beautiful species is unknown. It is believed, however, to be a hybrid between L. Chalcedonicum and L. candidum. The plant attains a height of six feet in the most favored situations, but four feet is, I think, nearer its usual height. The three to ten nankeen-colored flowers are borne in umbels, coming out nearly at the same time, or sufficiently near to be all open at once and fresh. When cut they are the most durable of any species I have yet noted. The best results have been from fall planting. Out of a hundred planted last autumn only a few failed of blooming, while from a smaller lot set in the spring not one has bloomed, though most of these sent up stems.

Another pretty species in flower at the same time is the Orange Lily, Lilium croceum, a native of the south of Europe. This plant is one of the strong-growing species, pretty sure to succeed in any good garden-soil. It is about the size of L. bulbiferum, but is, it seems to me, a better species. L. Parryi blooms this year with these and the two forms of L. concolor. L. Parryi is not so easily grown, yet, if the right soil is at hand, it can be made a success. It needs more moisture than most Lilies, which can be supplied to a great extent by giving it a good mulch. It also likes a peaty soil. The canary-yellow flowers are fragrant and have a peculiar appearance on account of their sepals turning back more on one side than on the other. They are nearly horizontal to the stem. My best plant bore seven flowers. They are of much shorter duration than those of L. testaceum.

Lilium Columbianum was the first species to bloom, and had good-sized seed-capsules formed before L. Hansoni had opened. I am inclined to believe that this is the earliest species to bloom, though Mr. Elwes, in his monograph on Lilies, says of L. Hansoni, "It is the earliest in growth of any kind I know." I find, however, that bulbs of L. Columbianum from different collectors do not flower together.

Charlotte, Vt. *F. H. Horsford.*

Carnation Notes.

CARNATION plants remaining under glass in beds or on benches now require copious supplies of water and frequent applications of stimulants. Our own plants are still flowering profusely, and the blooms are, as a rule, quite equal to those produced in the early spring months. To keep red spider in check we syringe the plants thoroughly morning, noon and night on bright days. A good wetting overhead at noon is especially beneficial on hot days, and we have failed to detect any injury to the flowers from this practice. As the flowering season is nearly ended, it is possible to pass judgment on the varieties cultivated. We have kept a record of flowers cut from most of the kinds grown. Of some sorts we had as few as half a dozen plants, and it is, of course, unfair to pass a conclusive opinion after the first season. We have, however, carefully noted the behavior of these same varieties in other places where Carnations are largely grown for market. Soil and locality have much to do with the success or failure of certain kinds, but unsuitable houses, erratic temperatures, careless ventilation and watering and a failure to comprehend the requirements of the plants are also causes of non-success.

William Scott has proved by far the most proliferous pink variety, and nearly everywhere it is highly spoken of. At present it is yielding an abundance of fine flowers, produced on long stout stems. Nicholson is destined to become popular; its large size, delightful fragrance and beautiful color have caused it to be in large demand in the market. Although we have not had nearly so many flowers from it as from William Scott, the introducer, Mr. Nicholson, of Framingham, Massachusetts, who grows both kinds largely, has had more blooms from his namesake than from William Scott. The appearance of his plants certainly bears out this statement. The flowers of Nicholson have a tendency to come semi-double and occasionally single in summer. We find that this tendency is checked by disbudding. Madame Diaz Albertini has not proved a prolific bloomer by any means. While it has many good points to recommend it, there is no use for it where Scott and Nicholson succeed. The same is true of Ada Byron, which, while a prolific spring bloomer, with some good qualities, is not a profitable kind to grow for market. Thomas Cartledge, which produces flowers of a bright carmine-pink color, is a variety well worth retaining. The flowers are of medium size, of pleasing color and borne on stout stems.

Lizzie McGowan, among white Carnations, has proved far and away the best variety. Mrs. Fisher produces too many burst flowers and the stems are weak; it cannot compete with Lizzie McGowan when the latter is well grown. Hector remains the best scarlet. By disbudding well down the stem fine flowers are produced, but it lacks a stout stem to hold the flower up like those of Portia. Portia is still worth retaining; except for its lack of size other scarlets would all be seconds to it. The Stuart has proved the least satisfactory scarlet we have tested. The flowers are sparingly produced, and they come streaky and often almost single. The stem is excellent. This kind is not useful in this section. Winter Cheer is a good variety to grow in pots. It is not a free bloomer when compared with Hector or Portia. Helen Keller has given us fewer flowers than any kind we have grown. Half the flowers fade before they are half open. Other near-by growers have found it a total failure; we hope next year to have better results under different treatment. During early winter Bouton d'Or proved the best yellow. Goldfinch has, however, produced twice as many flowers during the whole season; this variety has a long stout stem, and the flower is certainly a much more decided yellow than those of Bouton d'Or. Its tendency to burst the calyx is its chief drawback. Daybreak, in its special color, continues satisfactory; its delicate salmon-pink color keeps it a prime favorite, and it is one of the most floriferous kinds grown.

Summer-blooming plants in the open are now commencing to flower and will need to be staked and kept tied up if clean flowers are desired. Carnation-flowers grown out-of-doors are never so clean as those grown under glass. Dust, smoke and splashings from heavy rains all help to discolor them, and it is well to dip the flowers in clean water a few times after gathering them to remove the traces of dirt. Mrs. Fisher, the best outdoor bloomer, has a rather drooping tendency and needs more frequent tying up than other sorts. The heavy rains at the end of June, after a month of drought, have started plants into good growth. Those being grown for next winter's crop now require looking over weekly, and all shoots should be stopped before they have run up too far. The tips should be drawn out with the fingers and thumb of the right hand, the left hand steadying the shoot. Nothing but injury to the plants results from allowing them to grow up until they can be tipped with a pair of shears, as we have seen done. The surface soil will require frequent stirring with the hoe, and a sprinkler used in dry weather. We find that large plants produce more flowers than small ones, and they are of finer quality.

In the pressure of other work in spring-time the preparation of the compost-heap is often neglected. We always stack up the turf for this in the fall. The turf should be chopped and mixed with manure in April, and the heap turned over twice before being wheeled into the benches. We use one-third good cow-manure to two-thirds rather light sandy loam, and work in a little bone-dust in addition. Carnations require more feeding than they usually get, and if given a generous compost which has been thoroughly incorporated and treated rationally in other respects fewer starveling blooms would be seen.

Taunton, Mass. *W. N. Craig.*

Some Good Hardy Perennials.

Clematis recta.—This is the best herbaceous Clematis, and there are few white-flowered hardy plants that equal it when in bloom. It is a many-stemmed plant of compact habit with abundant dark green, healthy leaves. The first year after transplanting it only grows about three feet high, but when it gets well established it reaches a height of four or five feet. The flowers, which are plentifully borne in dense corymbs at the ends of the stems, are white and fragrant, and last well when cut. It would seem that a plant so easily grown and with such good flowers might be of great use to florists. C. recta makes an effective plant in the herbaceous border, but it grows well in almost any position. There are plants here under Oak-trees, where they get very little sun, and they are as healthy as those which stand in full sunshine, and their flowers last even longer. This Clematis comes from the south of Europe, and was introduced from there in 1597. It can easily be increased by dividing the plants and also by seeds, although they are slow to germinate.

Thermopsis Caroliniana.—This native Pea-flowered plant

makes an excellent subject for the rear line of the herbaceous border. Its unbranched stems grow from four to five feet high, and are well covered with dark green ternate leaves. The showy yellow flowers are in long terminal spikes, and they last for two or three weeks in bloom. It likes a good deep rich soil and a position where it is not shaded. When the plants are about three feet high it is beneficial to them to be tied loosely to a stake, for if the large spikes are wet with rain they are apt to fall down, and are not so handsome afterward. This plant can be increased in spring or fall by dividing the old roots, or it can be raised from seed. It produces an abundance of seeds annually, but they are slow to germinate and should be sown soon after they are collected. The plant grows wild in great abundance among the mountains of North Carolina.

Œnothera Missouriensis.—This Evening Primrose attracts more attention in the evening now than any plant in the mixed border, where it occupies the front row. We have some twenty plants, and each one measures a yard in diameter, and the large yellow flowers are admired by every one who sees them. Œnothera Missouriensis is a prostrate plant with numerous stems a foot or more long, and lanceolate leaves. It is well adapted in habit to the rock-garden, where its stems can hang over stones or rocks and show to advantage its large yellow flowers. The flowers are borne in the axils of the leaves, and they are very large, measuring over four inches in diameter, and the calyx is five inches long. Seeds are produced here, and from them young plants are conveniently raised, or from cuttings taken in May. Old-established plants should not be disturbed often, or when they have to be transplanted they should be taken up with a good ball of soil, so that the roots will be broken as little as possible.

Acanthus longifolius.—We have always given this plant the shelter of a cold frame during the winter, supposing that it would not be hardy here. A year ago, however, we had some strong plants set out in the border. They made vigorous growth during the summer and fall, and when frost set in they were covered with a good coating of Oak-leaves. To our surprise every plant lived through the winter and is flowering freely now. This large-leaved, stately plant, with its curious spikes of flowers, is very attractive. It grows three feet high, with radical leaves four feet long. The sessile purple-rose flowers, which are in the axils of the oval spiny bracts, are produced in long crowded spikes. If this plant has a good, light rich soil and a position where it will not be shaded in any way, and covered over in winter with leaves, I think it can be trusted as safely hardy. It is a native of Dalmatia and was introduced in 1869. Acanthus mollis latifolius has also stood the winter with the same care as the above species. It is just beginning to push up its flower-spikes. We have some plants of both the above species grown in a cold frame in a shady position. Although they are much larger than those in the border, they have not begun to bloom yet. This shows that it is essential for their welfare to be planted where they can get plenty of light. They are increased by division of the roots in spring or by seeds.

Lythrum Salicaria.—Near the margin of a small pond many strong plants of this Loosestrife are carrying large showy spikes of flowers. It is a British plant, although it is naturalized here, and is not rare in moist grounds, and it is an excellent subject for planting near the margins of lakes and streams. It grows about five feet high in good soil, and has large handsome spikes of rose-colored flowers.

Harvard Botanic Garden. *R. Cameron.*

Correspondence.

The Future of the Long-leaf Pine Belt.

To the Editor of Garden and Forest:

Sir,—A few weeks ago when I was in the Pine district of the south every evening the sky was illumined by a dull red glare, and in the daytime the horizon was obscured by a thin veil of smoky haze. The cause of this was the turpentine industry, which has now reached its busiest season.

Few people who have not been in what is called "the Long-leaf Pine belt" of the south can have any real idea of the extent of the damage done to the country by the turpentine workers and by the lumbermen, both of whom conduct their business on what has been bluntly called "the robbing system." They have left immense areas of land robbed not only of its natural resources, but in a worse condition for clearing and culture than before their invasion. Such is, without doubt, the case of many square miles in the two Carolinas, in Georgia, in Alabama and in Louisiana.

The result is that the most bare and barren places in all the south are those that have been visited by the army of turpentine gatherers. Every northern visitor familiar with well-ordered and cultivated farm lands and houses is struck by the great tracts of southern country on which there is no vegetation of any value. These wastes are deserted and uninhabited, except here and there by the negro's lonely cabin.

The loss from fires is enormous. The turpentine workers are so careless and indifferent as to allow fires to run through the tracts in which they have worked. The resin on the scarified surface of the trees burns like kerosene; a spark, a blaze, and all at once a disastrous conflagration is sweeping through the Pine-forests with great fury, destroying millions of feet of marketable timber, and leaving hundreds of acres a scene of awful ruin.

This is no highly colored story, but a plain statement of what has been going on in the Pine belt for years. Now and then protests have been raised against the reckless manner in which these forests are being destroyed, and yet very little has been done either by private or by public action to protect one of the greatest resources of the southern states.

This is the more remarkable when we consider the enormous wealth represented by the Long-leaf Pine belt. There is a strip of Pine-forest about one hundred miles wide that begins in North Carolina and follows the Atlantic and Gulf coast plain to Texas, crossing six states and covering an area of about 130,000 square miles. At a rough estimate, there may be 50,000,000,000 feet standing in this area; and if we take the values of timber and turpentine, the annual product of the forests of the south will approach in value the product of her Cotton-fields.

The pineries of the south now yield naval stores worth nearly $10,000,000 a year. The total production amounts to 340,000 casks of spirits of turpentine and 1,490,000 barrels of resin. In order to produce this enormous yield some 2,500,000 acres of Pine-forest are being worked, and nearly one million acres of virgin forest are invaded annually. Now, no one will claim that these pineries are inexhaustible, for there has actually been a decline in the production of naval stores within the past eight or ten years. The reckless cutting and tapping of trees have made great inroads into the magnificent stretch of Pine. Railroads have opened up many new tracts of timber, the old water mills have been replaced by steam saw-mills, and when the supply in the neighborhood was exhausted tramroads have been built or the steam mills taken to new territory. Thus, the work of consumption and denudation has been carried on to such an extent that fears are just now beginning to be entertained that these invaluable forests will be sacrificed to the greed for immediate and temporary gain.

The truth is, the Long-leaf Pine belt is the backbone of the south Atlantic states. For a hundred and fifty years it has been the chief resource of the people who dwell in the belt. The production of pitch and tar was begun in North Carolina during colonial days, and as the state took the lead in the industry its people were called "tar heels." There has been a heavy decline in the production of naval stores in North Carolina. This decline, amounting to fully forty per cent., is due simply to the exhaustion of the Pine-forests. Of course, much has been written on the destructive agency of the turpentine industry, and many suggestions have been made regarding changes and improvements which are necessary. It is agreed that the turpentine industry, as carried on in the United States, results in great loss and damage, directly and indirectly. Compared with the way in which the French gather turpentine, our methods seem crude, wasteful and almost irrational.

The American turpentine workers still continue to follow the old-time methods of tapping the trees for their sap. They have made few changes or have adopted few improvements. They cut a deep, broad "box" at the base of the tree, and then the surface above the box is laid bare. The trees are worked for four or five seasons, when they become practically exhausted of their sap. The forest is then abandoned to the elements, to the bark-beetles and pine-borers, and finally the splendid trees are blown, burned or cut down. The French turpentine worker cuts no deep box into the tree, but uses a pail, into which the resin or crude turpentine is conducted by a gutter. He makes only a small chip about three or four inches wide, and this is enlarged from time to time. After five seasons' working the trees are given a rest of several years, and so, by alternating periods of tapping and of rest, a tree can be profitably worked for fully fifty years. The French also take measures to regenerate their Pine-forests and to keep the trees strong and uniform.

If our turpentine workers understood the first principles of forestry they would modify their destructive methods. With

more knowledge based on experience the day will come when the southern people will see that good husbandry consists in management, not destruction, of their forest resources; that some precautions and some protection are necessary against fire as well as individual greed; that the present policy of the turpentine workers is lamentably wasteful and short-sighted; in other words, that it is more profitable to work the Pine-forests for fifty years instead of five years; and, finally, that the lumber and turpentine industries, while changing the face of nature and even the climate of the country, are slowly, but surely, making loss and trouble for this and succeeding generations.

New York. *L. J. Vance.*

Conifers in Iowa.

To the Editor of GARDEN AND FOREST:

Sir,—One of the most interesting features of the Iowa flora is the commingling of northern and southern forms. Sargent has called attention to the occurrence of several of the southern trees occurring in Iowa as Quercus Texana. We have also Hicoria laciniosa, H. glabra, Æsculus glabra, Cercis Canadensis, etc. The northern conifers are but sparingly distributed in Iowa, and definite localities are wanting. The distribution of some of these is so local and interesting that I record the localities. White Pine, Pinus Strobus, Sargent,* records "near Davenport" (Parry). Gray† also gives the same locality, while the later edition gives the general distribution of eastern Iowa.‡ As the species has been reported to me from several points, these should go on record. The species is quite local; the sandy ledges or limestone rocks along river courses are the only situations where it occurs in Iowa. Davenport (Parry), Muscatine (Reppert and Calvin), Cleremont and Elgin, in Fayette County (Pammel), near Decorah, Winneshiek County (Pammel, Holway), along the Wapsipinicon, in Buchannan County (Calvin), Delaware County, not far from Manchester (Calvin), Allamakee County (Calvin), Clayton (Pammel), Guttenberg (Pammel). The most westerly locality in Iowa known to me is in Hardin County at Steamboat Rock. This is a little north and east of central Iowa. A dozen or more good-sized trees occur on the rocky ledge of the Iowa River. Other localities probably occur along the Iowa River. This locality is, at least, 200 miles further west than those of eastern Iowa. The species may have been more common once than now, but it is hardly probable that the species was scattered by east winds, although it has excellent means of dissemination. Nor is it likely to have been scattered by the wind from the far north, as there are none for a good many miles. It is said to occur in Mitchell County, which is in the north tier of counties, but a little east of Hardin County.

I was much interested in learning about the occurrence of the Balsam Fir, Abies balsamea. in Iowa. I had been informed by several horticulturists of its occurrence in north-eastern Iowa, especially in Allamakee and Clayton counties. I had considerable doubt about its occurrence, as I had searched south-eastern Minnesota and western Wisconsin, in the vicinity of Lacrosse, for the species, but so far I have failed to find it, although it occurs at Spring Valley, in Fillmore County, according to Winchell.§ I spent a few pleasant hours with M. E. W. D. Holway, of Decorah, and found that he had a specimen in his herbarium collected near Decorah in 1878. The specimen was from a single tree which occurred on a steep bluff. I also learn from Professor Calvin that a considerable number of trees occur along the Yellow River two or three miles below Myron. The hill faces the north, and the trees occur for one mile along the river. The Clayton County localities given to me by Mr. Wragg are therefore confirmed. The topography of the county is rough, and numerous springs and streams occur. The Red Cedar, Juniperus Virginiana, is widely distributed throughout the state, occurring on the rocky bluffs along our rivers and streams, as at Boone, Ames, Des Moines and west. J. communis occurs quite frequently on bluffs in north-eastern Iowa.

Another conifer of north-eastern Iowa is the Canadian Yew, Taxus Canadensis. The species delights in sandy ledges in moist situations, occurring along with the Mountain Maple, Acer spicatum. The only other conifer to be looked for in Iowa is the Tamarack, Larix Americana. A small grove occurs in Houston County, Minnesota, just across the border, but none, so far as I know, has been reported from Iowa.

Ames, Iowa. *L. M. Pammel.*

* *Forest Trees of North America*, p. 187.
† *Manual*, fifth edition, p. 470.
‡ Watson & Coulter, *Gray's Manual*, sixth edition, p. 490.
§ *Upham Catalogue of the Flora of Minnesota*, p. 133.

Recent Publications.

The Wonderful Wapentake. By J. S. Fletcher. John Lane, London. A. C. McClurg & Co., Chicago.

Wapentake is an old English term still in use in Yorkshire to designate the political division of land which, in other counties, is called a district or hundred. The author tells us, in a short but characteristic preface, that these sketches of rural life and manners were contributed from time to time to various English papers under the pseudonym of "A Son of the Soil." And as we read these simple records of the homely rural life of Yorkshire, we cannot but note that the pseudonym was wisely chosen, for the book smacks of the soil. In a wholesome sense it is of the earth, earthy, and breathes from every page an atmosphere as fresh and invigorating as the smell of the warm earth during a summer shower.

Mr. Fletcher has the sane and vigorous love of country and the familiarity with all phases of country life which, according to the generally accepted idea, characterizes the Englishman in all grades of society; and it is this complex English sentiment, this commingling of an instinctive love of natural beauty with the passion of the past, which is reflected in this pleasant volume. In some of the papers, as "An Old-fashioned Christmas" and "Village Feasts," Mr. Fletcher describes, with both humor and pathos, old Yorkshire customs now fast falling into disrepute. In others, as in "Going into the House" and "A Waif of the Highway," he give us character-sketches, very delightful through their almost homely simplicity. In these and similar sketches, the many apparently careless, yet always accurate, descriptions of rural landscape are instinctively subordinated to the human interest, and thus the English rustic laborer, farmer, carrier and woodman, stands before us, each in his habit as he lives; each so absolutely at one with his environment, that even those who have never set foot on English soil cannot for a moment doubt the truth of the portrait. In papers like "An October Walk," "A Rainy Day in Arcadia" or "The Last Day of Harvest," Mr. Fletcher has given us literal descriptions of scenes so common in all rustic life that it would seem impossible that anything of interest could at this late day be written upon such threadbare topics.

But the author's idealism is that of the lover rather than that of the artist, and in his eyes there can be nothing common or prosaic in "The Wonderful Wapentake of Osgoldcross," which was the home of his boyhood. The distant hills, vaguely outlined against the reposeful sky, are still the Delectable Mountains of his childish imagination; the sun that shines upon those happy valleys has never faded into the light of common day, and the silver streams that wind through the meadow grass still spring from wells of living water. The glamour is not lifted even from the country roads which bind town and village. The village with the distant hamlet, in his eyes, is lovely as of yore, and the pictures which he gives us of the familiar and beloved scenes are photographs idealized; that is, they combine photographic truth and fidelity to detail with the atmosphere of poetry. The eighteen fine illustrations which accompany the text would seem to indicate that the author has not too highly praised the beauty of his native shire.

Notes.

The Southern Florist for July is devoted almost entirely to Cactuses, and the interesting illustrations and abundant descriptions and cultural notes make it a very useful number for all those who are devoted to the cultivation of this kind of plant.

Only a few of the late varieties of vegetables are now coming from the south, owing to the cheapness and abundance of local products. Tomatoes are being forwarded from Norfolk and south Jersey, and green corn is coming from the same sections. Asparagus of fair quality may yet be had, and costs twenty-five cents a bunch.

The fragrant, clear yellow flowers of the Sweet Sultan, Cen-

taurea Moschata, are among the most beautiful of those now sold on the sidewalk-stands. This is a common market flower in Europe, but has never been offered so abundantly in this city as it is this season. It is one of those excellent old annuals which deserve to be taken into favor everywhere.

Some of the Kœlreuteria-trees in the parks of this city are just opening their flowers, while others have been in full bloom for nearly a fortnight. The difference in the time of flowering is very marked in this tree, and it would be interesting to know if seedlings from the same tree varied widely in this respect. If they do not, the difference may be due to the fact that the original seed came from trees growing in different latitudes.

The latest number of the *London Garden*, which has come to hand, gives the picture of an arrangement in a vase of flowers of Gaillardia and Gypsophila paniculata which is very pleasing. We have often advised the use of this Gypsophila, with its loose panicles of minute white flowers among larger and brighter-colored ones. It has a mist-like hazy effect which adds very much to the lightness and grace of the combination. Statice latifolia is another plant of great value for the same purpose, and so is Galium aristatum. All three are perfectly hardy perennials which will live on from year to year with little care. The neat little annual, Gypsophila muralis, is also very useful in the same way, and nothing is better to associate with Sweet Peas.

Mr. J. S. Woodward writes to *The Rural New Yorker* that persons who pasture sheep in their orchards do not, as a rule, use enough sheep to do the most good. The sheep can add nothing to the land but what they take from it, but if a large number, say fifty, are put in eight acres of trees seeded with Orchard Grass, and are fed a little bran, say about a pound a day to each sheep, something like a hundred and thirty-four pounds of nitrogen, a hundred and sixty-four pounds of phosphoric acid and eighty-six pounds of potash would be distributed during the season over the ground in the best possible way, while the sheep would keep down every weed and sprout, gnaw the grass close and eat every fallen apple as soon as it strikes the ground.

Delaware grapes are offered on the fruit-stands, with Niagaras, and cost sixty cents for a three-pound basket. New California figs bring sixty cents a dozen. Royal Anne cherries of immense size and showy color command twenty-five cents a pound. Some Hale's Early peaches are already coming from Delaware. The main crop of Georgia peaches, being mostly of the early sorts, is practically exhausted. Those from California are now bringing good prices, which will probably be sustained until Delaware and New Jersey fruit is plentiful, when even the singular beauty of the California peaches will not avail in competition with the eastern fruit. About twenty-five car-loads of California fruit were sold here last week, including some seedling oranges. These brought the high average price of $3.27 for a car-load, owing to the inferior quality of the Rodi and Sorrento oranges, which were damaged by frosts.

Nearly fifty years ago a Michigan nurseryman propagated Rosa setigera, our beautiful native climbing Rose, in considerable quantity, and sold it as a novelty to eastern planters. Few people, however, cared for single Roses then, and it never became common in our gardens. In the first volume of Garden and Forest we called attention to the singular beauty of its broad healthy leaves and its corymbs of large deep rose-colored flowers, which are certainly more effective than any of the double varieties which have sprung from the plant. Even after we had dwelt upon its value for several years correspondents would write to inquire where plants could be had, and only a few nurserymen kept it. We are glad to say that it is now offered by almost every first-class nursery establishment in the country, and it should find a place in every garden. It is just passing out of bloom here, where it has been flowering for a fortnight. The flowers last a long time when cut—that is, if the branches are cut just as the first flowers on the cluster are appearing, the buds will follow each other for a week or more until all have opened.

A bulletin from the Cornell Experiment Station, prepared by Professor George F. Atkinson, gives a very complete account of several of the fungi which cause the disease known as damping off, on account of which the tissues of the seedling plants rot at the surface of the ground. The life history of several of these fungi is given very completely. Of special interest is the fungus which is parasitic upon Fern prothallia in forcing-houses and which is new to America. An entirely new species is also described. Since too much moisture in the soil, high temperature, insufficient light and close apartments favor the growth of these parasites, and at the same time weaken the growth of the seedlings so that they are less able to resist disease, the plain conclusion is that houses should be well lighted, supplied with fresh air and kept at as even a temperature as possible, and saturation of the soil should be avoided; if the disease once sets in the temperature should be kept as low as the plants will bear, and if they do not recover the soil in which they have grown should be discarded and the benches whitewashed; only perfectly healthy plants should be reset. Soil in which diseased plants have grown should not be used again until it is sterilized by steam heat for several hours.

We have more than once called attention to the value of the second crop of Irish Potatoes, raised in some parts of the south for seed. From the crop of early potatoes which is fit for market in June medium-sized potatoes are selected, spread out in the shade and exposed to the air for a week, when they turn green. After this they are covered with a thin layer of leaf-mold or straw, which is kept slightly damp, and in ten days or a fortnight they begin to sprout, when they should be planted. In the latitude of Carolina the tubers are fit to dig and store when frost kills the vine, and it is said that potatoes grown in this way and used as seed will produce a heavier crop of early potatoes in the north than can be grown from seed raised here. The great value of this seed is that it does not sprout in the spring, and even in the south it will not commence to sprout before June. *The Southern Planter* says that this seed planted in the south in June or early July will produce a late crop for table use which keeps longer and sounder than northern-grown potatoes. We are not sure that the quality of this crop will be as good as that grown in Maine, for example, or in Saratoga County in this state; but when we remember that last year we imported more than two millions of bushels of potatoes in excess of what was exported from the country, it would seem that it might be a profitable investment to grow this late crop on a larger scale.

Daniel Cady Eaton, the recognized authority in this country on Ferns, Mosses and Algæ, and professor of botany in Yale College, died in New Haven on the 29th of June, in the sixty-first year of his age. His grandfather, Professor Amos Eaton, was one of the leading systematic botanists of his day, and conspicuous among the comparatively few investigators in this field who devoted themselves during the early years of the century to the classification of the flora of the United States. His father, General Amos B. Eaton, like other members of the family, was given to scientific research, so that Professor Eaton inherited the passion and aptitude which gave direction to his youthful studies, and while yet in college he was the author of a paper on "Three new Ferns in California and Oregon." After his graduation from Yale College in 1857 he studied with Dr. Gray in Harvard for three years, when he enlisted as a private in the Seventh New York Regiment. After the civil war he was elected to the chair of botany in Yale College, which he held for more than thirty years and until the time of his death. He prepared the account of Ferns and their allied families for Chapman's *Flora of the Southern United States;* did the same work for the fifth edition of Gray's *Manual of Botany of the Northern United States*, and for Gray's *Botany of Field, Forest and Garden.* He wrote many papers on various botanical subjects, chiefly in his special field, and had charge of the botany in Webster's *International Dictionary.* His great work, however, was the well-known *Ferns, including the Ophioglossaceæ of the United States of America and British North American Possessions*, which was published in 1879–80, and illustrated with beautifully colored plates from drawings by J. H. Emerton and C. E. Faxon. Professor Eaton was an enthusiast in the special branch of botanical science to which he devoted his life, and he had the patience and the acuteness of discrimination necessary to secure for him his rank as an authority on flowerless plants. Many special students came to him for instruction, and his large private herbarium was one of the best of its kind in the world. Apart from his scientific studies, Professor Eaton was specially fond of genealogy and art, and took an active interest in public affairs. He had a singularly gentle and winning manner and a wholesome love of the woods and fields and outdoor sports. His achievements in science won the respect of the world, and among those who knew him more intimately in all his social relations he was held in esteem and affection for his kindliness, sincerity and unselfishness.